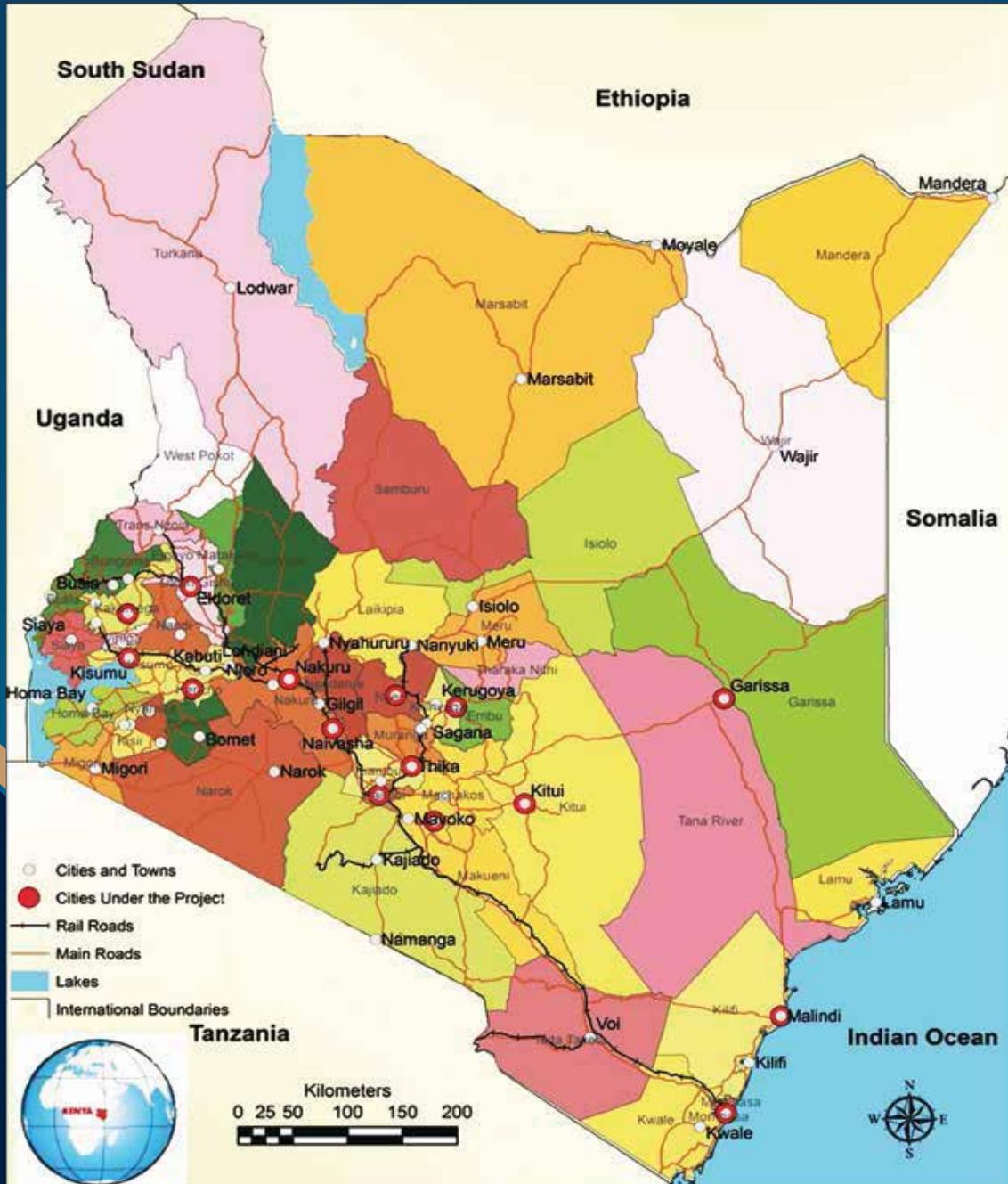


# Kenya

## STATE OF THE CITIES



# KERICHO





**KENYA STATE OF THE CITIES  
BASELINE SURVEY**  
STATISTICAL ABSTRACT FOR KERICHO, KENYA



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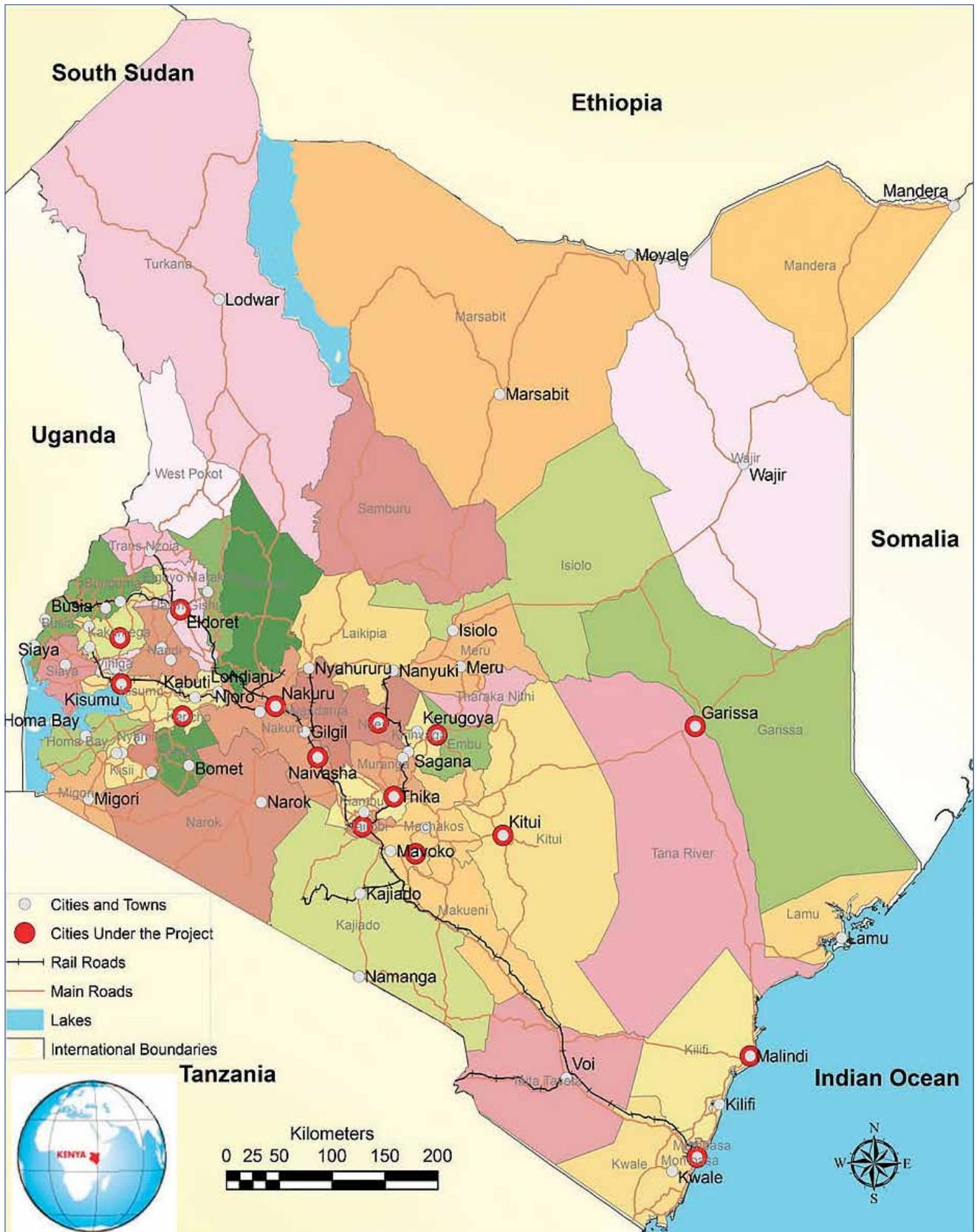
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# ABBREVIATIONS

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<b>CAPI</b>	Computer Assisted Personal Interview
<b>EA</b>	Enumeration Area
<b>GOK</b>	Government of Kenya
<b>HH</b>	Household
<b>HUD</b>	U.S. Department of Housing and Urban Development
<b>KIHBS</b>	Kenya Integrated Household Budget Survey
<b>KISIP</b>	Kenya Informal Settlements Improvement Program
<b>KMP</b>	Kenya Municipal Program
<b>KNBS</b>	Kenya National Bureau of Statistics
<b>NMSP</b>	Nairobi Municipal Service Project
<b>PDA</b>	Personal digital assistant, in this case a hand held computer used by interviewers
<b>PSU</b>	Primary Sampling Unit
<b>SMSA</b>	Standard Metropolitan Statistical Area
<b>SRS</b>	Simple Random Sample
<b>SSU</b>	Secondary Sampling Unit
<b>WB</b>	World Bank
<b>WBG</b>	World Bank Group

# KENYA STATE OF THE CITIES BASELINE SURVEY: CITIES COVERED



## Acknowledgements

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The Kenya State of the Cities Baseline Survey was the result of the hard work, dedication, and support of many people. Within the World Bank, the work was coordinated and led by Sumila Gulyani (Lead Urban Specialist) and Wendy Ayres (Senior Economist). The report reflects the hard work of a team of experts from NORC who designed the survey instrument and sampling strategy, collected the data, and prepared the reports. These include Ray Struyk, Sarah Hughes, Sam Haddaway, Santanu Pramanik, Yvonne Cao, and Tasha Heidenrich. Clifford Zinnes of NORC at the University of Chicago oversaw production of all documents, including the statistical analysis and production of tables. Data collection was administered by a Kenyan firm, Infotrak Research and Consulting. Computer programming was in Stata and provided by Aaron Wilson. The Baseline Survey also benefited from the continued insights and guidance and of Ellen Bassett (Professor of Urban Planning, University of Virginia) and Debabrata Talukdar (Professor of Economics, School of Management, University of Buffalo), and from the contributions of Dean Cira, (Lead Urban Specialist), Sheila Kamunyori (Urban Specialist), and R. Mukami Kariuki (Lead Water and Sanitation Specialist).

The team acknowledges the support provided by the World Bank management, in particular Diarietou Gaye (Country Director for Kenya), Thomas O'Brien (Country Program Coordinator for Kenya), and Sameh Wahba (Practice Manager, GSURR). The team also thanks the Peer Reviewers for their support. These include Melanie Walker (Senior Adviser, EXC), Catalina Marulanda, (Lead Urban Specialist, GSU10), and Apurva Sanghi (Program Leader, Kenya).

Support for the preparation of the Kenya Baseline Survey was provided by Elizabeth Karuoya (Program Assistant) and Roderick Babijes (Program Assistant). The team also thanks the report's editor, Tony Sittoni, and graphic designers Paul Chikombe and Robert Waiharo. To them the team extends its gratitude.

The team is grateful for the support of the Government of Kenya at all levels, without which this survey would not have been possible. Especially important were the contributions of the Kenya National Bureau of Statistics, which provided critical inputs into the sample design. The contributions of the team at the Directorate of Urban Development, Ministry of Land, Housing, and Urban Development were also essential. The team wishes to thank the respondents to the survey, who generously contributed their time to enable the survey teams to collect crucial information on the state of the cities in Kenya.

Finally, the team wishes to thank the Government of Sweden, the Cities Alliance, and the Bill and Melinda Gates Foundation for their generous support for the preparation of the Kenya State of the Cities Baseline Survey. Without their support, this work would not have taken place.

# INTRODUCTION

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## Background

The Kenyan government, with the support of development partners, is increasing its investments in urban infrastructure and services. To support these efforts, the World Bank has contracted NORC at the University of Chicago to carry out a baseline study of the demographic, infrastructure, and economic profiles of fifteen Kenyan municipalities: Nairobi City, Mombasa, Naivasha, Nakuru, Malindi, Eldoret, Garissa, Embu, Kitui, Kericho, Thika, Kakamega, Kisumu, Machakos, and Nyeri. This was undertaken in order to deepen understanding of the cities' growth dynamics, and to identify specific challenges to quality of life for residents. The study, called the "Kenya State of the Cities Baseline Survey," collects and analyzes household survey data to produce key statistics and identify differences in conditions among types of households—especially differences between those living in informal versus formal settlements. The ultimate goal is to use the information to establish development priorities for infrastructure and service investments and, eventually, to track the effectiveness of these investments.

Prior to the State of the Cities survey, there were little data available to support the design of programs to improve infrastructure and related services in most Kenyan cities. While there have been several household surveys of Nairobi's informal settlements and numerous analyses using the data, few surveys or analyses have been carried out in other Kenyan municipalities or for modest-income areas in Nairobi.

To facilitate access to the rich datasets generated by the survey, three written products were commissioned: a Statistical Abstract (such as this one) for each city, a City-at-a-Glance for each city (a two-page summary of the Abstract), and an Overview Report (a more comprehensive discussion of the topics in this Introduction, a topic-by-topic comparative analysis of the fifteen cities, and appendices with the survey instrument). The Abstract's objective is to provide comprehensive but easily accessible information on the wide range of municipal conditions covered in the survey, as reported by households. Some information in the Abstract also comes from secondary sources, such as the national Census and the Kenya Integrated Household Budget Survey (KIHBS). The primary audience for the Abstract includes policy makers, development practitioners, development partners, civil society organizations, and urban residents. Better planning and more productive investments can result from exploiting the information in each city's Abstract.

## Methodology

For this baseline household survey, NORC used a two and three-stage, stratified, clustered sampling design intended to be representative of poor and non-poor households living in formal and informal settlements in the fifteen cities included in the study. The first-stage sampling frame was based on Kenya's 2009 census frame of enumeration areas (EAs). In the census sample frame, EAs are identified as urban, peri-urban or rural. EAs are further identified as containing formal or informal settlement types. For the first stage sampling, NORC selected EAs from strata identified as informal (slum), urban-formal, peri-urban-formal and rural. In cases where the EAs were "large" (200 to 700 households), they were divided in half, thirds, or quarters and one segment was randomly selected.

For the final stage of sampling, NORC carried out a full household listing in each selected EA (or segment, as the case may be) and randomly selected ten households for interviewing.<sup>1</sup> Because expected response rates were unknown prior to data collection, interviewers were given a target to complete at least seven interviews in each EA. In Kericho, 143 EAs were selected in the first stage. In the second stage, a total of 9,611 households were listed and 1,453 households were selected.

The data for this report are based on 1,035 completed interviews carried out in Kericho from November 12, 2012 to March 2, 2013 by a team of eight interviewers and one supervisor. Among eligible households,<sup>2</sup> the completion rate was 71.23%.<sup>3</sup> Data collection took place in both formal and informal settlements simultaneously; 202 interviews were completed in informal areas and 833 were completed in formal areas.

## Questionnaire

The Kenya State of the Cities baseline questionnaire was developed iteratively using a base set of questions developed by the World Bank and refined to capture the key variables related to infrastructure access and municipal services of interest to the Kenyan government. The final fielded questionnaire is available in Volume II of the Overview Report. The household listing form and the questionnaire were programmed for use as a Computer-Assisted Personal Interview (CAPI) and both were carried out using 7-inch Samsung Galaxy Tab tablet computers which transmitted data to project servers via the mobile phone network. Interviewers used the tablet computers to capture GPS coordinates once during listing and again at the end of each interview.

## Data Quality

Recorded administration time of the CAPI instrument showed a median duration of 16 minutes in Kericho (21 minutes across all municipalities). However, duration values may have been compromised by transmission problems and supervisor reviews, which may have overwritten timestamps. Despite the uncertainty of exact durations, data quality measures do not show systematic interviewer-related errors in the final data. Approximately one-third of all interviews underwent validation, including call-backs by supervisors or central office staff (in-person and by phone).

## Table Presentation

Each city's Abstract includes a set of tables designed to provide basic information on households' economic and demographic conditions, their housing conditions, and access to infrastructure and services. One challenge in preparing the Abstract was to provide a complete picture of conditions while still being selective in the information presented so as not to overwhelm the reader. A second challenge was to display the information in a way that permits stakeholders to understand conditions faced by different population groups.

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<sup>1</sup> A complete description of the sampling design is found in "Kenya Municipal Program State of Cities: Overview Report," NORC, August 2013.

<sup>2</sup> Eligible households are defined as occupied dwellings with at least one resident age 18 or older who is present during the field period.

<sup>3</sup> The completion rate is the number of households that successfully completed an interview over the total number of households assigned.

To meet these challenges we have developed a set of tables with items believed to be most important for stakeholders and have broken down the items in several ways. In addition to providing an overall picture of household (HH) characteristics, the tables illustrate whether household characteristics differ by key factors. The rows of each table generally list the household characteristics (e.g., size of household, percentage of children in school). The columns present statistics for the entire city, then show how the data differs by location (informal vs. formal areas), household poverty status (poor vs. non-poor), gender of the head of household (male vs. female headed, for informal areas only), as well as other factors pertinent to the particular table.<sup>4</sup>

From each table, one can quickly observe if there are large differences in household characteristics by location, spending power, etc., simply by comparing the cells (numbers). Each table also shows whether the observed differences are statistically significant.<sup>5</sup> “Statistically significant” means that statistical analysis has revealed that a difference, no matter how small or large, is unlikely due to chance or randomness. In practice, statistically significant differences are the ones researchers are interested in—they can be interpreted as telling us about meaningful differences in household characteristics by location, spending power, gender, or other category. When we discuss differences in the text of this report, we will refer to “statistically significant” differences unless otherwise noted.

In terms of policy decisions, whether differences matter is a combination of whether they are statistically significant and how large the differences are. Ultimately, it is up to the policy practitioner to decide how large a difference must be to matter in the context of interest. An important note when interpreting results is that statistical significance does not imply causality. In other words, if differences in values are statistically significant, this does not mean that one variable caused a change in the other variable. Another factor may be influencing both variables; for example, for we may find a “significant” difference between head-of-household education and household poverty, perhaps the key common cause is social status, which affects both their educational attainment and job/spending opportunities. Additionally, where a statistically significant difference is identified it does not imply the direction of the relationship. Perhaps the household poverty is the reason for the different education levels, or vice-versa. In this report, therefore, we will say a household characteristic is “associated with” or “correlated” with certain factors, rather than saying one is caused by another.

In order not to clutter the tables yet provide the reader with the maximum information, we mark statistically significant results in the tables with bold (for two adjacent values in the same row) and *italics* (to compare adjacent columns of data). Underlined values denote an insufficient number of household responses for some enumeration category of the sampling design to perform a test of statistical significance. The number of observations for a particular variable is noted in the tables in rows denoted by “N”. Cells with

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<sup>4</sup> Informal/formal status was defined at the enumeration area level by the Kenya National Bureau of Statistics during the 2009 Census. Poor/non-poor is defined using the answer to a question asking respondents whether their total household expenditure in the last month was above or below a poverty line calculated using the household size (5,567 KSh for each adult 15 years and older + 3,619 KSh for each child aged 5 to 14 + 1,336 KSh for each child under 5 years old).

<sup>5</sup> Statistical significance is noted when a test achieves a p-value  $\leq 0.05$ .

no observations are indicated with hyphens (-).<sup>6</sup> The table, below, summarizes the formatting used in tables throughout the Abstract: A value that is both **bold** and italicized indicates statistically significant differences for two adjacent cells (i.e., values in the same row) as well as for the distributions between adjacent columns. In contrast, a value in standard font—no bolding, italics, or underlining—still means that a significance test was performed but that the values under comparison were not statistically significantly different from each other.

There is one caveat to the formatting rules that must be addressed regarding the significance testing of distributions. While the absence of italics sometimes means that the distribution was tested and was not found to be statistically significant, this is often not the case—i.e., there are many distributions which were not tested for significance. To avoid confusion, the comprehensive list of distributions which were tested for significance follow.

- **Table B.2a:** Expenditure ranges by location, tenure, water connection, business, skilled/unskilled head, and gender of household head (in informal areas)
- **Table B.2b:** Income ranges by location, tenure, water connection, business, skilled/unskilled head, and gender of household head (in informal areas)
- **Table C.3:** Distribution of home value ranges and rent ranges by location, tenure, water connection, business, skilled/unskilled head, and gender of household head (in informal areas)
- **Table D.1a:** Percent of households with a piped water connection inside their dwelling by security of ownership; percent of households with a piped water connection inside their compound by security of ownership; percent of households close to piped water access by security of ownership; cost of water by security of ownership; most important water source by security of ownership; reasons for no connection by security of ownership
- **Table D1.b:** Water source by water quality; water provider by water quality; water treatment buy water quality; treatment methods by water quality.

Another feature of the data worth mentioning is that outliers (responses that are very different from all the others) were not a major issue in the survey data, affecting just three variables in any important way.<sup>7</sup>

Finally, note that in tables presenting a distribution of responses, if some response categories are left out then the distribution will not add up to 100%. In cases where all response categories are listed then the first row of responses is given as 100. Unless otherwise noted, all figures presented in the tables are percentages.

<sup>6</sup> Regarding issues of non-response, both observational and item-specific, see Section 4, below.

<sup>7</sup> Across all fifteen municipalities these were (i) home value, in which 20 responses were reported in millions units instead of as the value itself (so we simply divided these responses by a million); (ii) 40 respondents reported travel time for a weekly or monthly commute rather than a daily commute (these over-eight-hours responses were dropped); (iii) we removed one case in which the time to get water was over a week.

**Table 1: Description of formats used to denote statistical significance**

Format	When we use it	Example
<b>Bold</b>	<p>Two bolded values in the same row next to each other indicate that the difference is statistically significant.</p> <p>We also use bold for 'Yes' or 'No' variables. If bold, it means that the difference between the mean of households that answered 'yes' (displayed) and the mean of those that answered 'no' (not displayed) is statistically significant.<sup>(a)</sup></p>	<p>Table A.1 displays the mean household size for households located in formal and informal settlements; if the pair of values is bold, it means that the difference in household sizes between formal and informal areas is statistically significant.</p> <p>Table B.2 displays the proportion of households which own land (or have tenure) that fall below the poverty line. If bold, it means that this proportion is statistically significantly different from the proportion of households which do not own land that fall below the poverty line.</p>
<i>Italics</i>	<p>We indicate statistically significant differences between columns of three or more cells using italics; this means the difference between the entire distributions (columns) is statistically significant.<sup>(b)</sup></p>	<p>Table B.2, Monthly household spending power, displays the distribution of households across income and expense ranges. If values appear italicized in both columns for households located in formal and informal settlements, the difference between the two distributions is statistically significant.</p>
<u>Underline</u>	<p>Denotes values where, due to lack of data at the census tract (enumeration area, or EA) level, it was not statistically possible to conduct the significance test.<sup>(c)</sup></p>	<p>Table B.3 shows the mean value of households' primary residence with and without land, and of any other residence and/or land. An underlined value means that due to lack of data at the census tract level, it is not possible to perform a test for significant differences.</p>
Hyphen (-)	<p>In cases where there are no data for a cell at all, we note that with a hyphen (-).</p>	<p>Table B.3 shows data related to household finance. For the percentages of households according to source of financing, the cells that display a hyphen means that there were no observations for that particular variable and category.</p>

Notes:

- a. Here a p-test from an Adjusted Wald test is conducted.
- b. Here Pearson's Chi-squared test is conducted.
- c. At least two households are required to compute a household-level variance, which is required to conduct a hypothesis test. Note that this does not imply that the respective table values are based on just one household or even just one EA.

The core of this abstract comprises a set of tables divided into chapters. Each chapter contains a textual summary of each table and highlights some of their implications. The tables are divided into four groups:

- A. Household characteristics – 3 tables
- B. Economic profile – 5 tables
- C. Tenure, tenure security, dwelling characteristics – 4 tables
- D. Infrastructure services – 7 tables

Notes to the tables are identified by small letters appearing as superscripts at the end of each table. All tables present weighted figures at the household level, unless otherwise noted, to reflect the total population of the respective table cell. The N values, however, present the unweighted number of households, unless otherwise noted.

The final chapter of this abstract contains a series of three “Development Polygons”. These complement the detailed tables presented in sections A through D by illustrating an “overall” sense of the state of the city. The figures included are the Development Diamond, the Infrastructure Polygon, and the Living Conditions Diamond.<sup>8</sup>

While the tables generally have a common set of column headings, there is some variation. The following are definitions for those headings that require clarification:

- *Informal/Formal Areas* – This distinguishes between areas based on whether most households in the area have property title and official services. It is a designation provided by a status code at the level of the EA (Enumeration area) as used by the National Census.
- *Gender (Informal)* – For the households living in the locations coded as “Informal,” data for household characteristics are provided for both male- and female-headed households. As is standard, the male-headed households may contain the spouse while female-headed households do not.
- *Class (of durable)* – Durable assets are a standard measure of household wealth. They are grouped into three classes, roughly based on their likely market value and degree of permanence. The actual items in each class are indicated in the table. The values reported for these categories are the number owned by the household, not their average or total value.
- *Spending Power* – The total value of household expenditures collected by the survey, excluding rent or mortgage payments.
- *Access to Infrastructure* – This indicator combines six categories of infrastructure (divided into 13 subcategories) weighted by importance to the household and summed to create a household indicator from 0 to 9.5. See NORC (August 2013), “Kenya Municipal Program State of the Cities: Overview Report” for a more detailed description.
- *Household Poverty* – The poverty line varies depending on the number of members of the household and their age. It is calculated by adding together:
  - 5,567 KSh per month for each adult 15 years and older in household,
  - 3,619 KSh per month for each child aged 5 to 14 in household,
  - 1,336 KSh per month for each child under 5 years old in household.

<sup>8</sup> The basic format for all three figures appear in the World Bank Policy Research Working Paper, “Poverty, Living Conditions, and Infrastructure Access” A Comparison of Slums in Dakar, Johannesburg, and Nairobi” by Sumila Gulyani, Debabrata Talukdar, and Darby Jack (2010). We strived to make our own figures as similar as possible, though some deviations, noted in the accompanying text, were necessary.



# HOUSEHOLD CHARACTERISTICS

This section presents basic household characteristics. Table A.1 provides information on household size and household member distribution by age category. Table A.2 details the level of education of the members of household, as well as the proportion of children and adults of different ages who were currently in school at the time of the survey. Finally, Table A.3 presents household health characteristics, including the proportion of children under 15 who have received the BCG vaccine (an immunization against tuberculosis), a major public health concern given that Kenya is a high-tuberculosis-burden country.<sup>9</sup> Table A.3 also includes the number of household members with an illness or injury in the two weeks prior to the survey, the proportion of those members who visited a health practitioner, average household medical expenditures for the month preceding the survey, and the percentage of households that have health insurance. All of these figures are given comprehensively and broken down by location type, the household's poverty status, and the gender of head of household (among informal areas).

## A.1 Household Demographic Composition

The 2009 census estimated that the municipality of Kericho had a population of 101,808, a 9% increase over the figure reported in the 1999 census; this represents a .89% annualized average growth rate.<sup>10</sup>

The average household size in Kericho, as reported by survey respondents, is 3.09 members. As indicated by the bold, the average household size is (statistically) significantly larger among poor households as compared to non-poor households (3.17 vs. 2.57), and is also significantly larger among male-headed households vs. female-headed household in informal areas (3.21 vs. 2.47). On average, about 85% of households' members are aged 5 to 60 years old – 10.9% are between 5 and 14 years old, 73.6% are between 15 and 60, 14.5% are under 5 and less than 1% are over 60. The percent of household members in various age groups varied significantly by poverty status; the mean percentage of children under 15 is 27% in poor households but only 16.5% in non-poor households, while non-poor households had a larger percentage of working age members (15-60 years old).

The head of household is male in 81% of all households, a figure that does not vary significantly by area, poverty status, or gender of household head. Ninety-one percent of female-headed households are located in formal areas, and 87% of female-headed households are poor, i.e. given their household size they have monthly expenditures below the poverty line.

<sup>9</sup> World Health Organization Global tuberculosis report 2012, retrieved June 12<sup>th</sup> 2013 from [http://www.who.int/tb/publications/global\\_report/en/](http://www.who.int/tb/publications/global_report/en/)

<sup>10</sup> From Statistical Abstract 2010 and Statistical Abstract 2006, Kenya National Bureau of Statistics.

**Table A.1: Household demographic characteristics**

Characteristic	All	Location		House hold poverty		Gender (Informal)	
		Informal areas	Formal areas	Poor	Non-poor	Male-headed	Female-headed
Number of households							
Weighted	23,018	2,573	20,445	19,464	3,460	2,151	401
N (unweighted)	1,030	202	828	879	147	168	32
Size of household	3.09	3.10	3.09	<b>3.17</b>	<b>2.57</b>	<b>3.21</b>	<b>2.47</b>
N	1,030	202	828	879	147	168	32
Mean percent of household members aged:							
Total	100	100	100	100	100	100	100
Under 5	14.5	14.3	14.5	<b>15.5</b>	<b>8.9</b>	14.6	12.8
5 to 14	10.9	11.1	10.9	<b>11.5</b>	<b>7.6</b>	10.6	12.6
15 to 60	73.6	72.7	73.7	<b>72.1</b>	<b>82.2</b>	72.9	72.6
Over 60	0.5	0.9	0.5	0.4	1.1	0.9	1.0
N	1,030	202	828	879	147	168	32
Proportion of households...							
Male-headed	81	84	81	80	84		
Female-headed	19	16	19	20	16		
N	1,015	200	815	865	146		
Female-headed distribution							
N		192	192				

## A.2 Household Education Characteristics

Kericho was part of the Rift Valley Province, where, in 2009, primary classrooms had an average class size of 36 students and secondary classrooms had on average 34 students. Student-teacher ratios in the former Rift Valley Province were, on average, 40.5 for primary schools and 23.1 for secondary schools.<sup>11</sup>

The first panel of Table A.2 presents statistics on the education of all individuals aged 5 years and older within the surveyed households. Having “no education” is rare; only 1% of all individuals had no education, and this figure was similar across all categories of households. A significantly higher percentage of household members in formal areas (16%) than in informal areas (10%) had higher education, and a significantly higher percentage of household members in non-poor households had higher education (30%) than in poor households (10%). A significantly higher percentage of household members in poor households also had primary education than in non-poor households. There were no significant differences by gender of household head in informal areas.

The second panel of the table shows the mean percent of adult individuals over 18 years within each household. This is done to show intra-household educational levels among households’ adult members. We find that on average, about half of the average Kericho household’s adults have completed secondary school or higher (29.5% completed secondary, while 21.3% completed higher education). Another half completed some primary, all of primary, or some secondary schooling; less than 1% of the typical household’s adults had no education whatsoever. Poor households had a significantly lower percent of adults with higher education than non-poor areas (17.9% versus 38.9% in non-poor areas).

<sup>11</sup> Provinces no longer exist in Kenya. This data is based on the Kenyan Institute for Public Policy Research and Analysis 2009 Economic Report, Table A3.16, pg. 192, per Ministry of Education statistics, [http://www.marsgroupkenya.org/pdfs/2009/10/Kenya\\_Economic\\_Report\\_2009.pdf](http://www.marsgroupkenya.org/pdfs/2009/10/Kenya_Economic_Report_2009.pdf) Section

Nearly 96% of individuals aged 5 to 14 years old are currently in school, but only about 58% of those 15 to 18 are in school. Only 10.4% of individuals over 18 are in school, but this category includes adults who have completed their schooling. The percentage of individuals over 18 that are currently in school is significantly higher among non-poor households than poor households (20.8% vs. 8.4%) and in male-headed vs. female-headed households in informal areas (8.8% vs. 0%).

**Table A.2: Household education characteristics**

Characteristic	All	Location		House hold poverty		Gender (Informal)	
		Informal areas	Formal areas	Poor	Non-poor	Male-headed	Female-headed
Percent of individuals 5 and older with highest grade completed:							
Total	100	100	100	100	100	100	100
None	1	1	1	1	0	1	1
Some Primary	30	34	30	<b>31</b>	<b>21</b>	33	34
Completed primary	20	21	20	<b>21</b>	<b>13</b>	22	13
Some secondary	12	14	12	12	13	14	18
Completed secondary	22	21	22	22	23	21	16
Higher	15	<b>10</b>	<b>16</b>	<b>13</b>	<b>30</b>	9	17
N	2,725	545	2,180	2,338	374	455	84
Mean percent of household's adults over 18 with highest grade completed:							
Total							
None	0.8	0.7	0.9	1.0	0.0	0.7	1.1
Some Primary	12.6	<b>18.9</b>	<b>11.8</b>	13.4	8.5	19.6	13.0
Completed primary	23.6	23.8	23.6	24.9	16.6	25.1	18.1
Some secondary	12.1	14.9	11.7	12.4	10.3	14.7	16.4
Completed secondary	29.5	26.3	29.9	30.2	25.6	27.2	20.2
Higher	21.3	14.8	22.1	<b>17.9</b>	<b>38.9</b>	11.9	31.2
N	1,029	201	828	878	147	168	31
Percent of individuals in school by age group:							
5 to 14	95.7	<u>97.4</u>	<u>95.5</u>	<u>95.8</u>	<u>98.9</u>	<u>97.3</u>	<u>97.7</u>
N	351	<u>70</u>	<u>281</u>	<u>303</u>	<u>46</u>	<u>55</u>	<u>14</u>
15 to 18	57.9	<u>63.5</u>	<u>57.2</u>	<u>55.7</u>	<u>77.9</u>	<u>79.6</u>	<u>33.4</u>
N	153	31	122	135	18	20	11
Over 18	10.4	7.5	10.8	<b>8.4</b>	<b>20.8</b>	<b>8.8</b>	<b>0.0</b>
N	1,023	200	823	873	146	168	30

### A.3 Household Health Profile

Kericho was part of Rift Valley Province, which in 2005 had an average of 11 doctors and clinical officers per 100,000 residents and 51.3 nurses per 100,000 residents.<sup>12</sup> The former Rift Valley province had 16 medical facilities per 100,000 residents, including hospitals, clinics, dispensaries, and other types of facilities.<sup>13</sup>

Overall, 83% of households' report their children under 15 have received BCG (tuberculosis) immunizations, with no statistically significant variation between groups. Eleven percent of households reported a sick or injured household member in the two weeks prior to the interview, a number which is significantly higher among non-poor households than poor households (22% vs. 10%). Ninety-seven percent of those ill visited a health practitioner. Households reported medical expenditures averaged 426 KSh in the previous month; this was significantly higher in male-headed vs. female headed households in informal areas. Rates of health insurance coverage are quite low (26%), and vary significantly by poverty status (61% had health insurance in non-poor households vs. 19% in poor households).

**Table A.3: Household health characteristics**

Characteristic	All	Location		House hold poverty		Gender (Informal)	
		Informal areas	Formal areas	Poor	Non-poor	Male-headed	Female-headed
Percent of household's children under 15 having received BCG immunization	83	86	82	81	98	84	99
N	586	112	474	516	68	92	19
Percent of households with an injured/ill member, previous two weeks	11	15	11	10	22	16	9
N	1,030	202	828	879	147	168	32
Percent of ill household members that visit a health practitioner, previous two weeks	97	<u>97</u>	<u>96</u>	<u>95</u>	<u>99</u>	<u>97</u>	<u>100</u>
N	123	28	95	87	35	24	4
Household medical expenditures (KSh), previous month	426	324	438	361	800	377	58
N	1,027	200	827	878	145	167	31
Percent of households with health insurance	26	23	26	<b>19</b>	<b>61</b>	25	12
N	1,029	202	827	878	147	168	32

<sup>12</sup> 2004/2005 numbers of healthcare providers obtained from Partners for Health Reform plus 2006 Report, Table A1, pg. 39, Annex A, statistics obtained from Rep. of Kenya. [www.healthsystems2020.org/files/1654\\_file\\_Tech101\\_fin.pdf](http://www.healthsystems2020.org/files/1654_file_Tech101_fin.pdf). Per capita figures calculated by dividing by 2005 (estimated) population obtained from the Kenya Integrated Household Budget Survey, Table 3.1, [http://www.knbs.or.ke/pdf/Basic%20Report%20\(Revised%20Edition\).pdf](http://www.knbs.or.ke/pdf/Basic%20Report%20(Revised%20Edition).pdf).

<sup>13</sup> Based on most current (undated) figures from Kenya Bureau of Statistics Open Kenya online database, <https://kenya.socrata.com/Health-Sector/Health-Facility-Pie-Chart/yre4-763w>. Per capita figures calculated by dividing by 2009 census population, obtained from 2010 Statistical Abstract, Kenya National Bureau of Statistics.

### **B.1 Household Occupational Composition**

Table B.1 presents the current occupation, or main activity, of household members. The first panel shows the percent of all adults over 18 in each of the occupations. The five most prominent occupation categories are self-employed, casual employee, regular employee, homemaker, and student, which together comprise about 84% of all adults in Kericho over 18 years old. Interestingly, individuals in formal areas are significantly more likely to be unpaid family workers than individuals in informal areas, but are also significantly less likely to be unemployed and not looking for work than individuals in informal areas. Individuals in poor households are significantly less likely to be students or regular employees than those in non-poor households (only 16% of the poor are regular employees vs. 38.6% of the non-poor), while the poor are significantly more likely to be unpaid family workers or homemakers. One interesting and statistically significant finding is that members of female-headed households in informal areas are more than twice as likely to be regular employees as members of male-headed households. Individuals in female-headed households in informal areas are also significantly less likely to be homemakers than individuals in male-headed households in these areas.

The second panel shows the average percent of adults over 18 within each household that are occupied in each of the categories. This is done to show intra-household occupational status among households' adult members. The results here are similar to those in the first panel above. Here, we find that on average, about two-thirds (68.2%) of a household's adult members are either regular employees, casual employees, or self-employed. About 13% are homemakers, 45.6% are students, and 4.6% are unemployed looking for work. Our survey found no significant differences by location. The percentage of regular employees was 42.8% in non-poor households' adults vs. only 18% in poor households, and the difference was significant. Interestingly, the percentage of regular employees was also much higher (43%) in female-headed houses vs. male-headed houses (16.3%), as was the percentage of self-employed, although the difference was of a smaller magnitude. Although less than one percent is employers overall, non-poor households contain significantly higher percentage of adults (2.4%) who are employers. Non-poor households also contain a small but significantly higher percentage of adults who are students than poor households. In informal areas, male-headed households contain significantly higher average percentages of adults who are homemakers than female-headed households, and poor households also have a significantly higher average percentage of adults who are homemakers than non-poor households.

**Table B.1: Household members' main activity**

Occupation <sup>a</sup>	All	Location		House hold poverty		Gender (Informal)	
		Informal areas	Formal areas	Poor	Non-poor	Male-headed	Female-headed
Percent of adults over 18 with occupation:							
Employer	0.5	1.2	0.4	<b>0.2</b>	<b>2.2</b>	1.4	0.0
Regular employee	19.4	18.5	19.5	<b>16.0</b>	<b>38.6</b>	<b>15.8</b>	<b>39.4</b>
Casual employee	21.1	25.6	20.6	22.0	16.5	26.6	20.2
Self-employed	22.3	24.1	22.1	23.5	16.3	23.7	24.3
Unpaid family worker	5.6	<b>2.5</b>	<b>5.9</b>	<b>6.2</b>	<b>1.8</b>	2.9	0.0
Apprentice	0.5	0.2	0.5	0.4	1.1	0.1	0.8
Student	6.7	4.0	7.0	<b>5.7</b>	<b>11.1</b>	4.1	0.9
Pensioner/investor	0.4	0.0	0.5	0.5	0.0	<u>0.0</u>	<u>0.0</u>
Earning from investments/ property	0.1	0.0	0.1	0.1	0.0	<u>0.0</u>	<u>0.0</u>
Sick/unable to work	0.4	0.2	0.4	0.4	0.0	0.2	0.0
Unemployed looking for work	6.0	4.5	6.2	6.3	4.4	4.1	7.2
Unemployed, not looking for work now	1.2	<b>3.1</b>	<b>1.0</b>	<b>1.4</b>	<b>0.3</b>	2.7	5.5
Homemaker	14.1	15.8	13.9	<b>15.5</b>	<b>6.7</b>	18.0	0.0
N	1,992	381	1,611	1,701	282	329	49
Mean percent of household's adults over 18 with occupation: <sup>b</sup>							
Employer	0.5	1.0	0.5	<b>0.2</b>	<b>2.4</b>	1.2	0.0
Regular employee	21.8	20.2	22.0	<b>18.0</b>	<b>42.8</b>	<b>16.3</b>	<b>43.0</b>
Casual employee	24.5	28.2	24.0	25.4	20.0	30.4	17.5
Self-employed	21.9	23.3	21.7	23.2	15.1	<b>22.1</b>	<b>28.1</b>
Unpaid family worker	4.9	2.2	5.3	<b>5.6</b>	<b>1.4</b>	2.7	0.0
Apprentice	0.3	0.1	0.3	0.3	0.6	0.0	0.1
Student	5.6	3.8	5.8	<b>5.0</b>	<b>8.1</b>	3.9	0.4
Pensioner/investor	0.4	0.0	0.4	0.4	0.0	<u>0.0</u>	<u>0.0</u>
Earning from investments/ property	0.1	0.0	0.1	0.1	0.0	<u>0.0</u>	<u>0.0</u>
Sick/unable to work	0.3	0.1	0.3	0.4	0.0	0.1	0.0
Unemployed looking for work	4.6	3.5	4.7	4.7	3.3	3.4	4.2
Unemployed, not looking for work now	1.0	2.9	0.8	1.2	0.2	2.5	5.0
Homemaker	12.8	14.4	12.6	<b>14.2</b>	<b>5.6</b>	<b>17.2</b>	<b>0.0</b>
N	1,029	201	828	878	147	168	31

Notes:

- a. The category "Other" has been omitted.
- b. These numbers are obtained by first computing the percentages of each household's members in each category, and then taking the mean of these percentages over all households.

## B.2 Household Income/Expenditure Levels

There are two general approaches to measure spending power: expenditure and income, both of which are shown in the tables below. In the survey, income derives from household members' salaries, business earnings, rents, public cash support, and earnings from financial assets in the month prior to the interview, but does not include any remittances. Expenditures include all purchases, including investments for household-owned businesses. In theory, both approaches express the same amount of spending power, but typically one approach is not enough, especially when estimations are based on survey data. This is because survey respondents' perceptions about their income and expenditures can be unreliable; estimates vary depending on seasonal changes in economic activities, type of assets owned, household's cash flows, and in-kind payments. In practice, the expenditure approach is usually more accurate because most respondents, making purchases daily, recall their expenses better. Income, on the one hand, can be problematic because it can be subject to respondent misreporting (e.g., desire to impress the enumerator) and, with non-wage income, respondents do not generally make a clear distinction between revenue (sales) and income (revenue minus expenses). Using both methods, therefore, provides an additional level of verification.

The majority (85%) of all households have monthly expenditures below the poverty line, as determined by the household composition. Interestingly, this proportion is about equally high in both formal and informal areas and there is no significant difference. The percent below the poverty line is significantly lower, however, when a household has tenure compared to when it does not, when the head of household works in a "skilled" vs. "unskilled" profession, and when the household head is male vs. female. However, the poverty line is not significantly lower when the household owns a business compared to when it does not own a business, or when a household has a water connection compared to when it does not.

About 91% of households had monthly expenditures below 31,000 KSh, and 94% of households had income below this level. The income distribution is more tightly concentrated among the bottom levels than the expenditure distribution. As indicated by the italics, expenditure and income distributions vary significantly depending on tenure status, water connection, business ownership, whether the household head is skilled, and gender of household head (informal areas only). Whether a household owns a business is a particularly strong predictor of higher expenditures—44% of households with a business fall into the three highest expenditure categories.

On average, households who sent money to individuals outside their household sent 6,384 KSh in the three months prior to the interview, and those that received money received, on average, almost 8,682 KSh in the same period. Households were more likely to send money than to receive it, and wealthier households were much more likely to send money than poorer ones—75% of households in the top expenditure category sent money to friends or relatives, compared to only 2% of those in the bottom. Wealthier households were also more likely to receive remittances than poorer ones, although to a lesser degree (only 40% in the top income category received remittances, for example).

**Table B.2a: Monthly household spending power, as measured by expenditure**

Characteristic	All	Location		Household has...			House hold head is <sup>c</sup>		Gender (Informal)		Value of transfer (row %) <sup>d</sup>
		Informal areas	Formal areas	Tenure <sup>a</sup>	Water connection	A business <sup>b</sup>	Skilled	Unskilled	Male-headed	Female-headed	
Percent of House holds below poverty line	85	83	85	97	86	83	77	91	86	64	
N	1,026	200	826	268	432	157	403	623	166	32	
Mean expenditure (monthly KSh)	13,975	15,576	13,774	11,507	16,022	21,218	15,777	12,614	15,400	16,493	
N	1,030	202	828	268	434	158	407	623	168	32	
Percent of households with expenditure: <sup>d</sup>											
Less than 3,000 KSh	13	13	13	24	1	3	12	14	16	2	8,211 (2%)
3,001-6,000 KSh	13	12	13	9	8	8	12	14	14	2	3,200 (12%)
6,001-9,000 KSh	16	11	17	21	24	9	15	17	8	26	10,080 (17%)
9,001-30,000 KSh	16	14	16	19	22	13	10	20	14	12	5,660 (19%)
13,001-18,000 KSh	18	19	18	13	21	22	20	17	16	36	4,845 (33%)
18,001-30,000 KSh	14	20	13	7	14	23	20	10	22	9	7,400 (57%)
31,001-75,000 KSh	8	11	8	5	9	20	10	7	10	14	14,317 (73%)
Above 75,000 KSh	1	1	1	1	1	1	1	0	1	0	29,430 (75%)
N	1,030	202	828	268	434	158	407	623	168	32	301
Cash transfers <sup>e</sup>	6,384	<u>6,562</u>	<u>6,366</u>	<u>7,275</u>	<u>6,976</u>	<u>5,293</u>	<u>6,986</u>	<u>5,637</u>	<u>7,458</u>	<u>4,213</u>	
N	109	18	91	20	16	33	44	65	13	5	

Notes:

- Household possesses deed or other officially recognized document conferring ownership of the structure, land, or both.
- "Business" refers to a self-employed activity that may or may not entail household or wage employees.
- Includes those self-declared as "skilled" as well as "professional".
- An imputed 30-day value from responses over several periods (7 days for food, 30 days for other consumables, 12 months for durables and annual services). See Volume I in the Overview Report. No significance test performed on this column.
- Transfers are cash outflows over last three months averaged over households with such flows (equal to proportion of row households in parentheses).

**Table B.2b: Monthly household spending power, as measured by income**

Characteristic	All	Location		Household has...			House hold head is <sup>c</sup>		Gender (Informal)		Value of remittance (row %) <sup>e</sup>
		Informal areas	Formal areas	Tenure <sup>a</sup>	Water connection	A business <sup>b</sup>	Skilled	Un-skilled	Male-headed	Female-headed	
Proportion of households with income: <sup>d</sup>											
Less than 3,000 KSh	5	5	5	10	4	3	1	8	5	3	4,036 (2%)
3,001-6,000 KSh	23	22	23	26	12	17	17	28	20	30	6,091 (16%)
6,001-9,000 KSh	24	25	24	23	19	24	26	23	22	39	8,122 (13%)
9,001-30,000 KSh	16	12	16	17	18	17	17	15	13	4	7,793 (9%)
13,001-18,000 KSh	12	13	12	9	16	13	12	12	14	8	4,230 (7%)
18,001-30,000 KSh	14	17	13	12	16	22	18	11	18	14	17,811 (21%)
31,001-75,000 KSh	6	7	6	4	15	4	10	3	7	2	11,861 (40%)
Above 75,000 KSh	0	0	0	0	0	0	0	0	0	0	-
N	1,017	198	819	266	433	156	400	617	164	32	104
Cash remittances <sup>e</sup>	8,682	<u>12,597</u>	<u>8,367</u>	<u>9,956</u>	<u>11,749</u>	<u>8,433</u>	<u>8,568</u>	<u>8,755</u>	<u>14,257</u>	<u>6,423</u>	
N	109	18	91	20	16	33	44	65	13	5	

**Notes:**

- a. Household possesses deed or other officially recognized document conferring ownership of the structure, land, or both.
- b. "Business" refers to a self-employed activity that may or may not entail household or wage employees.
- c. Includes those self-declared as "skilled" as well as "professional".
- d. Total household cash income in KSh, previous month, not including in-kind income or cash assistance from/to family or friends who live outside the household. No significance test performed on this column.
- e. Remittances are cash inflows over last three months averaged over households with such flows (equal to proportion of row households in parentheses).

### B.3 Household Wealth Composition

The "household wealth index" is calculated from the household's declared ownership of a list of common household items. The value itself is created by totaling the estimated value of each item (indicated in brackets, in USD), converting to KSh, and dividing by 1,000; so the average of 26.1 means that the average household owned approximately 26,100 KSh worth of listed possessions. However, since each possible possession was only counted once, this should not be taken as a reliable estimate, but rather a unitless index of comparison.

This index is significantly higher in formal than informal areas but not in non-poor vs. poor households or in male-headed vs. female headed households. There are significantly higher holdings of nearly all classes of goods in formal areas vs. informal areas; the poor have higher holdings of farm animals than the non-poor, while the non-poor have higher holdings of entertainment equipment than the poor. Almost no households of any time have motorized transport holdings.

Home values are relatively concentrated among a relatively small group. The high number of missing or don't know responses to this question means that tests of statistical significance were not possible. For the 26 respondents who did answer, the average value of residence was 78,200 KSh and average value of residence and land was 1,041,000 KSh.

**Table B.3: Household wealth composition**

Characteristic	All	Location		House hold poverty		Gender (Informal)	
		Informal areas	Formal areas	Poor	Non-poor	Male-headed	Female-headed
Index of household wealth <sup>a</sup>	26.1	18.7	27.0	25.5	29.3	19.4	15.4
N	1,030	202	828	879	147	168	32
Household's average holdings of:							
Class-1 durables (furniture, pans, iron, mosquito net) [7]	5.6	5.1	5.6	5.5	5.9	5.1	5.0
Class-2 durables (stove, sewing machine, fan, wheelbarrow, water storage tank) [60]	0.8	0.7	0.8	0.8	0.9	0.7	0.6
Class-3 durables (refrigerator, washing machine, electric generator, bicycle) [100]	0.1	0.0	0.1	0.1	0.1	0.0	0.0
Farm animals (poultry and livestock) [200]	0.3	0.1	0.3	0.3	0.1	0.1	0.1
Entertainment equipment (radio, TV, satellite dish, DVD, video player) [80]	1.7	1.4	1.7	1.6	2.4	1.4	1.2
Motorized transport (motorcycle [400], car [1,000])	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N	1,030	202	828	879	147	168	32
Value of primary residence, not its land (in 1,000 KSh) <sup>b</sup>	78.2	<u>89.1</u>	<u>72.9</u>	<u>57.3</u>	<u>96.3</u>	<u>88.2</u>	<u>88.2</u>
N	7	4	3	4	3	2	2
Value of primary residence and its land (in 1,000 KSh) <sup>b</sup>	1,041	<u>903</u>	<u>1,558</u>	<u>903</u>	<u>1,558</u>	<u>78</u>	-
N	26	3	23	21	5	3	0
Value of other land and/or residence (in 1,000 KSh) <sup>c</sup>	1,200	-	<u>1,200</u>	-	<u>1,200</u>	-	-
N	1	0	1	0	1	0	0

**Notes:**

- This is a class-weighted average of the number of items as disaggregated in this same table, multiplied by the weight given within the square brackets [].
- About 97% of the sample had missing values for this amount, though at about the same frequency across the categories of this table. About half the sample that declared owning land or a residence failed to report its value. Averages are only over households with the asset. See "Proportion of Owners" in Table C.1. Note that values in the last three rows of the table are divided by one thousand.
- Since the survey does not ask the value of these, they have been imputed as a percent of primary residence value where it was declared (see Footnote (b)). These imputations are: land in city (10%), land outside city (5%), residence only in city (40%), and residence only outside of city (28%). If household has both land and structure these are scored separately and added together. In the case where the land of primary residence is not owned the value of the residence is first doubled before the imputations are made.

**B.4 Household Finance**

Around 63% of all households in Kericho have a bank account, a number that differs significantly across area type and poverty status. However, the percentage of households with loans of any kind is extremely low at 6%. Half of all loans (3%) are obtained from banks. However, 14% of non-poor households have a loan from a bank, compared to only 1% of the poor; the difference is significant. Consistent with findings mentioned above, far more households overall (33%) sent money to people not living at the household than received money (11%). Significantly fewer poor households send and receive money than non-poor households.

**Table B.4: Household finance**

Characteristic	All	Location		House hold poverty		Gender (Informal)	
		Informal areas	Formal areas	Poor	Non-poor	Male-headed	Female-headed
Percent of households with a bank account	63	<b>48</b>	<b>65</b>	<b>61</b>	<b>76</b>	50	36
N	1,029	202	827	879	147	168	32
Percent of households with a loan	7	6	7	5	19	6	4
N	1,027	201	826	878	147	167	32
Percent of households with a loan from a...							
Bank	3	4	3	<b>1</b>	<b>14</b>	50	36
Microfinance institution	2	2	2	2	2	3	0
Savings/credit group or co-op	1	2	1	1	2	3	0
Relative/friend	0	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Informal lender	0	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
N	1,030	202	828	879	147	168	32
Percent of HHs receiving cash from those not now living at residence <sup>a</sup>	11	8	12	9	22	7	10
N	1,029	202	827	879	147	168	32
Percent of HHs sending cash to those not now living at residence <sup>a</sup>	33	38	32	<b>25</b>	<b>77</b>	41	23
N	1,029	202	827	879	147	168	32

Notes:

Over the previous twelve months.

## B.5 Household-Owned Business Profile

Fifteen percent of households own a business, half of which (54%) engage in some form of selling while the other half list “other,” such as barber, cleaning, etc. These businesses tend to be fairly new and quite small, as the average age for a business is about one and a half years and the average number of employees is two, and most employees are household members—in fact, the business owner is the sole employee in many cases. Revenues in the previous month averaged 10,710 KSh. Nearly 40% of all businesses are registered either with a local authority while 60% are not registered at all. Concerning fiscal contributions, 38% of businesses pay a daily market fee and 25% pay a single business permit; none report paying value added tax. The relatively low number of businesses means that it is not possible to perform tests of statistical significance for most of Table B.5.

**Table B.5: Household-owned business profile**

Characteristic	All	Location		House hold poverty		Gender (Informal)	
		Informal areas	Formal areas	Poor	Non-poor	Male-headed	Female-headed
Percent of House hold with business ownership, last 12 months	15	16	14	14	17	16	18
N	1,030	202	828	879	147	168	32
Type of business: <sup>a</sup>							
Manufacturing	1	<u>2</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>3</u>	<u>0</u>
Selling	54	<u>47</u>	<u>54</u>	<u>50</u>	<u>70</u>	<u>38</u>	<u>90</u>
Transport	1	<u>0</u>	<u>1</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>
Professional (including Internet)	2	<u>0</u>	<u>2</u>	<u>2</u>	<u>0</u>	<u>0</u>	<u>0</u>
Other (barber, cleaning, etc.)	44	<u>51</u>	<u>43</u>	<u>47</u>	<u>30</u>	<u>59</u>	<u>10</u>
N	158	37	121	126	31	31	6
Years in operation	1.4	<u>1.3</u>	<u>1.4</u>	<u>1.3</u>	<u>1.9</u>	<u>1.1</u>	<u>2.5</u>
N	158	37	121	126	31	31	6
Number of employees	2	<u>1.8</u>	<u>2.1</u>	<u>2.1</u>	<u>1.7</u>	<u>1.9</u>	<u>1.1</u>
N	158	37	121	126	31	31	6
Which are...							
Household members	1.4	<u>1.2</u>	<u>1.4</u>	<u>1.4</u>	<u>1.3</u>	<u>1.3</u>	<u>1</u>
N	158	37	121	126	31	31	6
Non-household members	0.7	<u>0.5</u>	<u>0.7</u>	<u>0.7</u>	<u>0.4</u>	<u>0.6</u>	<u>0.1</u>
N	158	37	121	126	31	31	6
Revenue in previous month <sup>b</sup>	10,710	<u>11,345</u>	<u>10,614</u>	<u>9,852</u>	<u>14,528</u>	<u>12,682</u>	<u>4,387</u>
N	139	34	105	110	29	29	5
Registration status:							
Local authority (municipal or city council)	39	<u>41</u>	<u>39</u>	<u>38</u>	<u>49</u>	<u>47</u>	<u>14</u>
Kenya Revenue Authority	0	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Registrar of Companies	0	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
None of the above	60	<u>59</u>	<u>60</u>	<u>62</u>	<u>51</u>	<u>53</u>	<u>86</u>
N	158	37	121	126	31	31	6
Share of businesses making fiscal contributions:							
Daily market local fee	38	<u>38</u>	<u>38</u>	<u>34</u>	<u>57</u>	<u>29</u>	<u>78</u>
Single business permit local fee	25	<u>31</u>	<u>24</u>	<u>24</u>	<u>29</u>	<u>37</u>	<u>0</u>
Value Added Tax	0	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
N	158	37	121	126	31	31	6

**Notes:**

- a. Households were allowed to choose more than one category so these figures may exceed 100%.
- b. Average over only those businesses operating over the period.

## DWELLING TENURE, SECURITY, AND CHARACTERISTICS

### C.1 Household Dwelling Characteristics

On average, households in Kericho have 2.2 people per room, a ratio that significantly differs by area type, household poverty, and the gender of household head. Households have one bathroom on average. Twenty percent of households have a kitchen. This proportion is higher in formal settlements (21%) than in informal (13%) and higher among non-poor households (34%) than poor households (17%); both are significant differences.

Most households in Kericho cook with charcoal (63%); the rest use firewood (17%) or gas (11%), although firewood is rarely used in informal areas (3%) or by non-poor households (3%). Charcoal is significantly more common in informal areas (85%) vs. formal areas (61%).

Most households are renters (78%), with only 21% owning their land and/or structure. Significantly more households in informal areas are renters than in formal areas, and significantly more non-poor households are renters than poor households.

In Kericho, 25% of households report that the area around their dwelling floods during heavy rains, 30% say they live within a ten-minute walk of a formal or informal garbage dump, 5% state that they are susceptible to mudslides, and 2% say that they are exposed to factory pollution in their neighborhood. Unsurprisingly, susceptibility to mudslides is significantly higher in informal than in formal settlements. Flooding and living near a dump are reported significantly more often in poor vs. non-poor households.

Quality of housing varies widely across location. Twelve percent of households have an earth or clay floor, although it is significantly lower in non-poor households than poor households. Almost all households have an iron or grass roof, though the proportions are slightly but significantly higher in poor vs. non-poor households and male-headed vs. female-headed households (informal areas only). Only 45% of households have stone or brick walls, although they are more common in formal areas than informal areas and in non-poor households than poor households.

**Table C.1: Household dwelling characteristics**

Characteristic	All	Location		House hold poverty		Gender (Informal)	
		Informal areas	Formal areas	Poor	Non-poor	Male-headed	Female-headed
Number of persons per room	2.2	2.5	2.2	2.3	1.7	2.6	1.9
N	1,029	202	827	878	147	168	32
Number of bathrooms	1.0	1.2	1.0	1.0	1.0	1.1	1.6
N	1,030	202	828	879	147	168	32
Proportion of residences with kitchen	20	13	21	17	34	11	20
N	1,030	202	828	879	147	168	32
Primary cooking fuel:							
Electricity	1	0	2	1	6	0	0
Paraffin or kerosene	7	6	7	7	8	7	1
Gas	11	5	12	8	30	4	11
Charcoal	63	85	61	65	52	85	82
Firewood	17	3	19	20	3	2	5
N	1,020	202	818	872	144	168	32
Proportion of households that:							
Total	100	100	100	100	100	100	100
Owns the land only	1	0	1	1	0	0	0
Owns structure only	1	2	1	1	1	1	3
Owns land and structure	20	6	22	23	4	6	6
Rents	78	93	76	76	92	93	91
Squats	1	0	1	0	2	0	0
N	1,030	202	828	879	147	168	32
Pct. of HHs in areas subject to <sup>a</sup> :							
Flooding <sup>b</sup>	25	23	25	27	10	20	32
Mudslides <sup>c</sup>	5	13	4	6	2	15	6
10 minute walk to formal or informal garbage dump	30	35	30	33	15	36	24
Factory pollution (air, water, noise)	2	3	2	3	2	3	4
N	1,030	202	828	879	147	168	32
Housing quality:							
Pct. with earth/clay floor	12	8	12	13	4	8	12
Percent with corrugated iron roof	97	99	96	98	91	100	96
Percent with grass roof	0	0	0	0	0	0	0
Percent with stone/brick/block walls	45	34	47	41	68	36	26
N	1,030	202	828	879	147	168	32

**Notes:**

- All data is self-reported, and therefore subjective.
- Households reported that the area floods during heavy rains.
- Households reported that they are located on a hillside that is subject to mudslides.

## C.2 Home and Land Ownership

Most households are renters (78%). Ownership of the land and structure is significantly higher in formal areas and (surprisingly) among the poor households (23% of the poor own vs. only 4% of the non-poor). Fully 92% of households owning their structure reported feeling secure in their ownership, where “secure” represents owners who feel no one could force them to leave without an official legal process in which they would participate, “insecure” represents owners who feel they could be forced out, and “rent” represents those who rent their homes and therefore have no security of ownership as well as squatters and those who own their dwelling but not land. Most household owners (80%) reported having a freehold title for their land, while 13% reported no land possession documents whatsoever. Almost no households reported being evicted.

The bottom portion of Table C.2 focuses on neighborhood mobility. Households reported living an average of 7.6 years in their present dwelling, and about 8.3 years in their present neighborhood. Formal area households reported living in their dwelling and neighborhood significantly longer than informal area households, as did male-headed vs. female headed households in informal areas. Interestingly, poor households reported living in their dwelling and neighborhood significantly longer than non-poor households. Home loan payments as a percent of spending power were only reported for a few respondents.

**Table C.2: Household residence and land tenure**

Characteristic	All	Location		House hold poverty		Gender (Informal)	
		Informal areas	Formal areas	Poor	Non-poor	Male-headed	Female-headed
Percent of households that:							
Total	100	100	100	100	100	100	100
Own the land only	1	0	1	1	0	0	0
Own structure only	1	2	1	1	1	1	3
Own land and structure	20	6	22	23	4	6	6
Rent	78	93	76	76	92	93	91
Squat	1	0	1	0	2	0	0
N	1,030	202	828	879	147	168	32
Percent of HHs that feel secure in ownership	92	<u>58</u>	<u>94</u>	<u>92</u>	<u>100</u>	<u>50</u>	<u>100</u>
N	268	17	251	256	12	13	4
Variability of households feeling secure <sup>a</sup>	0.05	-	0.03	0.05	-	-	-
N	268	17	251	256	12	13	4
Percent of House holds that experienced eviction	0	0	0	0	0	0	0
N	1,030	202	828	879	147	168	32
Proportion of HH owners by type of land-possession document:							
Total	100	100	100	100	100	100	100
None	13	<u>26</u>	<u>13</u>	<u>13</u>	<u>19</u>	<u>23</u>	<u>38</u>
Freehold title	80	<u>63</u>	<u>81</u>	<u>81</u>	<u>63</u>	<u>63</u>	<u>62</u>

Characteristic	All	Location		House hold poverty		Gender (Informal)	
		Informal areas	Formal areas	Poor	Non-poor	Male-headed	Female-headed
Temporary occupation license	0	0	0	0	0	0	0
Share certificate	0	0	0	0	0	0	0
Government certificate of title <sup>b</sup>	0	0	0	0	0	0	0
Letter from chief (provincial administration)	6	0	6	6	15	0	0
Other	0	12	0	0	3	14	0
N	285	19	266	273	12	14	5
<b>Neighborhood mobility</b>							
Years in dwelling	7.6	5.2	7.9	8.2	4.6	7.9	5.2
N	1,030	202	828	879	147	830	168
Years in neighborhood	8.3	6.1	8.6	8.8	5.9	8.6	6.1
N	1,029	202	827	878	147	168	32
Home loan payment as a percent of spending power <sup>c</sup>	11	7	13	-	11	7	-
N	4	2	2	0	4	2	0

**Notes:**

- Computed as the intra-class correlation coefficient, where the “class” is the EA. This measures the extent to which households within an EA resemble each other in their feelings of security in ownership. No significance tests performed on this row.
- Long-term lease from City council/Government.
- Computed only for those with a housing loan.

### C.3 Distribution of Housing Values and Rents

Nearly all respondents reported their home values to be between 9,000 KSh and 2.5 million KSh; the average value was 921,000 KSh. Note that very few households—33 in total—reported home values, so these results are likely unreliable.

Average rent is 2,491 KSh per month, and households are fairly evenly distributed among the five monthly rent levels presented in the table below. Rent differences could not be tested for significance due to a lack of observations at the census tract level.

**Table C.3: Distribution of housing values and rents**

Characteristic	All	Location		Household has...			House hold head is... <sup>c</sup>		Gender (Informal)	
		Informal areas	Formal areas	Tenure	Water connection	A business	Skilled	Un-skilled	Male-headed	Female-headed
Average home value (1,000 KSh) <sup>a</sup>	921	<u>83</u>	<u>998</u>	<u>1,041</u>	<u>1,851</u>	<u>418</u>	<u>1448</u>	<u>758</u>	<u>81</u>	<u>90</u>
N	33	7	26	26	6	13	9	24	5	2
Distribution of home values: Total	100	100	100	100	100	100	100	100	100	100
1-8,999 KSh	2	<u>0</u>	<u>3</u>	<u>3</u>	<u>17</u>	<u>0</u>	<u>0</u>	<u>3</u>	<u>0</u>	<u>0</u>
9,000-299,999 KSh	25	<u>100</u>	<u>18</u>	<u>15</u>	<u>17</u>	<u>35</u>	<u>17</u>	<u>28</u>	<u>100</u>	<u>100</u>
300,000-999,999 KSh	39	<u>0</u>	<u>42</u>	<u>44</u>	<u>0</u>	<u>49</u>	<u>43</u>	<u>37</u>	<u>0</u>	<u>0</u>
1,000,000-2,499,999 KSh	20	<u>0</u>	<u>22</u>	<u>23</u>	<u>24</u>	<u>17</u>	<u>15</u>	<u>22</u>	<u>0</u>	<u>0</u>
2,500,000-250,000,000 KSh	13	<u>0</u>	<u>14</u>	<u>15</u>	<u>42</u>	<u>0</u>	<u>25</u>	<u>9</u>	<u>0</u>	<u>0</u>
N	33	7	26	26	6	13	9	24	5	2
Average monthly rent (tenants) <sup>b</sup>	2,491	<u>1,593</u>	<u>2,630</u>	-	<u>3,858</u>	<u>1,922</u>	<u>3,132</u>	<u>1,872</u>	<u>1,590</u>	<u>1,626</u>
N	713	174	539		309	104	335	378	148	24
Distribution of monthly rents: Total	100	100	100		100	100	100	100	100	100
1-899 KSh	21	<u>31</u>	<u>20</u>	-	<u>9</u>	<u>23</u>	<u>16</u>	<u>26</u>	32	25
900-1,499 KSh	18	<u>21</u>	<u>17</u>	-	<u>11</u>	<u>29</u>	<u>16</u>	<u>20</u>	24	8
1,500-1,999 KSh	14	<u>18</u>	<u>14</u>	-	<u>10</u>	<u>10</u>	<u>15</u>	<u>14</u>	17	23
2,000-3,499 KSh	26	<u>22</u>	<u>26</u>	-	<u>29</u>	<u>27</u>	<u>21</u>	<u>31</u>	19	38
3,500-150,000 KSh	21	<u>7</u>	<u>23</u>	-	<u>40</u>	<u>11</u>	<u>33</u>	<u>10</u>	8	6
N	713	174	539		309	104	335	378	148	24

**Notes:**

- a. Self-reported, current, monthly, fair-market price (response to the question, "If you were to sell your house, how much do you think you could sell it for?").
- b. Excludes imputed owner-occupied rents.
- c. Includes those self-declared as "skilled" as well as "professional".

## C.4 Neighborhood Social Capital and Civic Participation

Civic participation on both measures—attending local councils and neighborhood forums—is low at 4% and 8%, respectively. However, respondents that own their homes are more likely than renters to attend neighborhood forums. Only 18% of all households reported that they had participated in a local election, but 73% voted in the 2007 general election and 69% voted in in the 2010 referendum. Male-headed households were significantly more likely to have voted in local elections than female-headed households in informal areas, while households in formal areas were significantly more likely than informal areas to have voted in the national election or the referendum than those in informal areas. Owners are significantly more likely to have voted in all types of elections.

Only 17% of respondents reported that they had an informal community or neighborhood leader, although 51% of owners did vs. 8% of renters, and the difference was significant. Very few respondents (1%) said that they had participated in a public demonstration or protest.

The survey asked respondents whether people in their neighborhood would cooperate if asked by an official to conserve water or electricity because of an emergency, and whether people in their neighborhood look out for each other. On both questions, the results were positive. When asked if people in their community would cooperate if asked by an official, the results averaged 3.1 on a four-point scale (where 4=“very likely” and 1=“very unlikely” to cooperate). When respondents were asked if they agreed that people look out and trust each other in their neighborhood, answers averaged 3.5 on a five-point scale (where 1=“strongly disagree” and 5=“strongly agree”). On both questions, there were slight but statistically significant differences by category, formal areas scored significantly higher on both measures and owners higher than renters on the cooperation measure. Unlike the civic participation measures, there were statistically significant differences in social capital by residents’ access to infrastructure. In the upper half of infrastructure access, significantly more respondents said they looked out/trusted one another compared respondents in the lower half.

Sixty-two percent of respondents said they felt safe in their own neighborhood, a percent that was significantly higher in formal vs. informal areas, in the upper half vs. lower half of infrastructure access, and in owners vs. renters. Interestingly, 71% of female-headed households reported feeling safe as compared to only 45% of male-headed; this difference was also significant.

**Table C.4a: Neighborhood social capital and civic participation**

Characteristic	All	Location		Access to infrastructure <sup>(a)</sup>		Gender (Informal)		Tenure <sup>(b)</sup>	
		Informal areas	Formal areas	Lower half	Upper half	Male-headed	Female-headed	Own	Rent
Civic participation									
Percent of households... contacting local council	4	5	4	3	4	6	1	3	4
N	1,030	202	828	428	602	168	32	281	749
attending a neighborhood forum	8	6	8	6	9	6	7	16	6
N	1,030	202	828	428	602	168	32	281	749
Social activism									
Percent of households voting in...local election <sup>(c)</sup>	18	18	18	18	18	21	5	28	15
N	1,029	202	827	428	601	168	32	281	748
2007 general election <sup>c</sup>	73	62	74	72	73	64	57	84	70
N	1,030	202	828	428	602	168	32	281	749
2010 referendum <sup>(c)</sup>	69	60	70	70	69	59	65	81	66
N	1,030	202	828	428	602	168	32	281	749
Percent of households with informal community or neighborhood leader	17	15	17	21	14	14	23	51	8
N	1,018	195	823	426	592	162	31	281	737
Percent of households that took part in a public demonstration or protest	1	0	1	1	0	0	0	0	1
N	1,030	202	828	428	602	168	32	281	749

**Notes:**

- a. Defined by dividing the population in half based on a score assigned using responses from thirteen infrastructure-related questions (see Section 3 of Introduction.)
- b. Alternatively, this could be the length of time living in the neighborhood: less/more than (say) 2 years.
- c. Out of all households and not just those registered to vote.

**Table C.4b: Neighborhood social capital and civic participation**

Characteristic	All	Location		Access to infrastructure <sup>a</sup>		Gender (Informal)		Tenure <sup>b</sup>	
		Informal areas	Formal areas	Lower half	Upper half	Male-headed	Female-headed	Own	Rent
Social capital									
Average HH response to:									
People in my neighborhood cooperate if asked by an official <sup>c</sup>	3.1	2.9	3.1	3	3.1	2.9	2.8	3.2	3
N	1,030	202	828	428	602	168	32	281	749
People in my neighborhood look out for/trust each other <sup>d</sup>	3.5	3.2	3.5	3.2	3.5	3.2	3.3	3.6	3.5
N	1,030	202	828	428	602	168	32	281	749
Proportion of HHs feeling safe from crime in own neighborhood	62	50	63	54	68	45	71	76	58
N	1,030	202	828	428	602	168	32	281	749

*Notes:*

- a. Defined by assigning scores using responses from thirteen infrastructure-related questions.*
- b. Alternatively, this could be the length of time living in the neighborhood: less/more than (say) 2 years.*
- c. Four-point scale where 1="Very unlikely" to 5="Very likely".*
- d. Five-point scale where 1="Strongly disagree" to 5="Strongly agree".*

**D.1a Water Access**

Only 38% of households have a private piped water connection in their dwelling, but 72% have piped water in their compound, and 83% of households that don't have a private piped water connection in their dwelling are close (within 50 meters) to a source of piped water. Only private piped water connection in dwelling varies significantly by category—it is higher in formal areas (39%) than in informal areas (26%). On average, it takes the respondents who collect water about 9 hours per month to obtain water, including travel to and from the water source, waiting time, and filling time. On average, it costs the respondents who pay for water an average of 468 KSh a month. There was not enough data at the census tract level to test for statistically significant differences between categories of households for the cost of water in time or money.

Despite the fact that 38% of households have piped water in their dwellings, only 24% of respondents report that piped water is their most important water source, and in informal areas, only 10% report piped water into dwelling as their primary water source (and this is significantly different from the percentage in formal areas). Some 51% of households report that a shared yard tap is their most important source of water. Another 13% name water vendors as their most important source, although only 4% of non-poor households use water vendor as their primary water source (and this is significantly different from the percentage in poor households). Interestingly, in informal areas 16% report neighbors as the primary water source, and this is significantly different from the percentage in formal areas (5%).

In the second part of Table D.1a, we see that of the households that didn't have a connection to piped water, the main reason given (54%) was because they rented rather than owned their home and their landlord would not pay for a connection; the second most common reason (20%) was inability to afford the initial connection (although relatively few were unable to afford a water bill). Only 2% of respondents reported that the water provider had a waiting list, and only 1% said they had other sources available.

**Table D.1a: Water access**

Characteristic	All	Security of ownership <sup>a</sup>			Location		House hold poverty		Gender (Informal)	
		Secure	Insecure	Rent	Informal areas	Formal areas	Poor	Non-poor	Male-headed	Female-headed
Percent of households with private piped water connection inside dwelling	38	41	15	37	26	39	38	34	25	28
N	1,030	248	20	762	202	828	879	147	168	32
Percent of households with piped water connection in compound	72	75	67	71	65	73	72	75	64	71
N	1,030	248	20	762	202	828	879	147	168	32
Percent of households close to piped water access <sup>b</sup>	89	<u>66</u>	<u>51</u>	<u>95</u>	<u>97</u>	<u>87</u>	<u>88</u>	<u>97</u>	<u>96</u>	<u>100</u>
N	228	58	8	162	54	174	209	18	43	10
Monthly cost of water in ...Time (minutes) <sup>c</sup>	554	<u>584</u>	<u>1625</u>	<u>537</u>	<u>536</u>	<u>558</u>	<u>541</u>	<u>610</u>	<u>550</u>	<u>494</u>
N	180	50	2	128	48	132	161	18	37	10
Money (KSh)	468	<u>453</u>	<u>307</u>	<u>476</u>	<u>478</u>	<u>466</u>	<u>453</u>	<u>538</u>	<u>473</u>	<u>466</u>
N	576	181	11	384	129	447	478	97	107	20
Most important water source: Total	100	100	100	100	100	100	100	100	100	100
Piped	24	19	9	25	10	25	23	26	9	12
Bottled	0	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Shared tap connection	51	57	58	50	56	51	50	61	56	60
Vendor (kiosk, tanker, other)	13	1	0	16	16	12	14	4	18	6
Neighbor(s)	6	2	4	8	16	5	6	9	16	17
Well/borehole	3	13	15	1	0	4	4	0	0	0
Natural source outside household	3	9	14	1	1	3	4	0	1	5
N	1,030	248	20	762	202	828	879	147	168	32
No connection due to:	100	100	100	100	100	100	100	100	100	100
Other sources available	18	<u>38</u>	<u>69</u>	<u>12</u>	<u>2</u>	<u>21</u>	<u>20</u>	<u>0</u>	<u>3</u>	<u>0</u>
Renting <sup>d</sup>	54	<u>3</u>	<u>0</u>	<u>68</u>	<u>66</u>	<u>52</u>	<u>51</u>	<u>88</u>	<u>66</u>	<u>62</u>
Can't afford connection	20	<u>40</u>	<u>31</u>	<u>15</u>	<u>19</u>	<u>20</u>	<u>22</u>	<u>5</u>	<u>17</u>	<u>34</u>
Can't afford monthly bill	4	<u>13</u>	<u>0</u>	<u>2</u>	<u>8</u>	<u>3</u>	<u>4</u>	<u>1</u>	<u>8</u>	<u>5</u>
Provider has waiting list	2	<u>6</u>	<u>0</u>	<u>2</u>	<u>5</u>	<u>2</u>	<u>2</u>	<u>3</u>	<u>6</u>	<u>0</u>
No service available	1	<u>0</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>1</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>
Other	1	<u>0</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>4</u>	<u>0</u>	<u>0</u>
N	228	58	8	162	54	174	209	18	43	10

Notes:

- Self-reported; "secure" includes owners who feel no one could force them to leave without an official legal process in which they would participate, "insecure" includes owners who feel they could be forced to leave without an official legal process, and "rent" includes renters, squatters, and people who own their structure but not land.
- Respondents were asked whether there were dwellings or businesses within 50 meters of their home that had a piped water connection in the dwelling or compound.
- Calculated as the sum of time spent travelling, waiting in line, and filling containers.
- House does not have a connection and landlord will not pay for one.

## D.1b Water Quality

Water quality is rated “good” by 98% of the households that have piped water, but by less (74%) of those that use a shared tap or a vendor (71%), and only 58% of those who use a natural source rate water quality as “good” (although only 3% use a natural source). No matter what the source, all of the rest rate water quality as “fair”—no one rated their water quality as “poor.” The differences between good and fair ratings by each of these sources mentioned are significant, as indicated by the bold (the italics indicate significant differences in the distribution of sources by rating between “good” and “fair”).

Almost all respondents purchase their water from a public utility (99%). Only 11% of the households in Kericho treat their water in any way; of those that treat water, most boil it (84%) and/or add bleach or chlorine (16%).

**Table D.1b: Water quality**

Characteristic	All	House hold poverty		Location		Water quality					Gender (Informal)	
		Poor	Non-poor	Informal areas	Formal areas	Good	Fair	Poor	Total	N	Male-headed	Female-headed
Water source: <sup>a</sup>	24	23	26	10	25	98	<u>2</u>	0	100	254	9	12
Piped												
Bottled	0	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	-	-	-	-	0	0	0
Shared tap connection	51	50	61	56	51	74	<u>26</u>	0	100	534	56	60
Other vendor	13	14	4	16	12	71	<u>29</u>	0	100	113	18	6
Neighbor(s)	6	6	9	16	5	98	<u>2</u>	0	100	50	16	17
Well/Borehole	3	4	0	0	4	70	30	0	100	40	0	0
Natural outside-HH source	3	4	0	1	3	58	42	<u>0</u>	100	39	1	5
N	1,030	879	147	202	828	823	207	0			168	32
Water provider:	99	<u>99</u>	<u>99</u>	<u>99</u>	<u>99</u>	<u>82</u>	<u>18</u>	<u>0</u>	100	790	98	100
Public												
Private	0	0	0	0	0	-	-	-	-	0	0	0
Self	0	0	0	0	0	-	-	-	-	0	0	0
Community	1	1	1	1	1	79	21	0	100	12	2	0
N	802	670	129	148	654	655	147	0			125	22
Percent of households treating drinking water	11	11	12	11	11	83	<u>17</u>	<u>0</u>	100	136	12	7
N	1,030	879	147	202	828	823	207	0			168	32
Treatment method: <sup>b</sup>	84	<u>90</u>	<u>54</u>	<u>71</u>	<u>86</u>	<u>84</u>	<u>16</u>	<u>0</u>	100	113	<u>68</u>	<u>100</u>
Boiling												
Add bleach/chlorine	16	<u>11</u>	<u>42</u>	<u>32</u>	<u>14</u>	<u>77</u>	<u>23</u>	<u>0</u>	100	25	<u>23</u>	<u>4</u>
Other (sieve, filter, settle)	1	<u>1</u>	<u>5</u>	<u>0</u>	<u>2</u>	<u>100</u>	<u>0</u>	<u>0</u>	100	2	<u>0</u>	<u>0</u>
N	136	115	20	27	109	113	23	0			23	4

Notes:

a. Most important water source.

b. Since multiple responses were permitted, the sum can exceed 100%. Likewise, “Other” is not shown, since it was negligible, so the sum may also be less than 100%.

## D.2a Electricity and Waste-Disposal Services

Fifty-nine percent of respondents reported access to electricity, a figure that differs significantly by poverty (76% of non-poor have access vs. only 56% of poor) and settlement type (60% in formal areas have access vs. 49% in informal). Reasons for not having a connection are similar to those for water—the primary reason reported was that households were renters and therefore didn’t have a choice (50%), followed by inability to pay for the initial connection (38%).

Only 2% of respondents reported functional street lighting in their area. The average monthly bill for those with electricity is 602 KSh a month. Twenty percent of households with electricity do not pay for it. Electricity payments are primarily made to the public utility (98%). Even when electricity is available, it is not particularly reliable; fully 62% of respondents experience outages on a weekly basis or more.

Forty-three percent of households reported getting rid of their refuse by dumping it in their neighborhood or compound, 26% by burning, 17% by a collection system, and 14% by burying. Dumping is significantly more common (60%) among informal area households than formal area households, although 41% of formal area households still dump their garbage. Formal area households are more likely to use a collection system (18%) or bury their garbage (15%) than informal area households. Poor households are significantly more likely to burn their garbage (28%) than non-poor, who are significantly more likely to use a collection system (32%). Interestingly, the proportion of female-headed households that burn refuse is double that of male-headed households (50% vs. 22%), and the difference is significant, while considerably more male-headed households dump refuse than female-headed households (63% vs. 45%).

**Table D.2a: Access to electricity and waste-disposal**

Characteristic	All	Location		House hold poverty		Gender (Informal)	
		Informal areas	Formal areas	Poor	Non-poor	Male-headed	Female-headed
Electricity							
Proportion of households with access to electricity	59	49	60	56	76	49	51
N	1,030	202	828	879	147	168	32
Reason for no connection: Total	100	100	100	100	100	100	100
Renters	50	<u>73</u>	<u>47</u>	<u>50</u>	<u>57</u>	<u>73</u>	<u>74</u>
Firm has waiting list	9	6	9	9	0	7	0
Cannot afford connection	38	<u>16</u>	<u>41</u>	<u>38</u>	<u>41</u>	<u>15</u>	<u>23</u>
Cannot afford monthly bill	3	<u>5</u>	<u>2</u>	<u>3</u>	<u>2</u>	<u>5</u>	<u>3</u>
Other	1	<u>0</u>	<u>1</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>
N	433	99	334	400	32	80	18
Percent of households with mostly functioning street lighting	2	1	2	2	3	1	0
N	1,030	202	828	879	147	168	32
Average monthly bill, KShs	602	<u>526</u>	<u>609</u>	<u>513</u>	<u>861</u>	<u>648</u>	<u>254</u>
N	216	35	181	162	53	28	7
Percent of households not paying for electricity	20	<u>19</u>	<u>20</u>	<u>22</u>	<u>9</u>	<u>12</u>	<u>31</u>

Characteristic	All	Location		House hold poverty		Gender (Informal)	
		Informal areas	Formal areas	Poor	Non-poor	Male-headed	Female-headed
N	274	44	230	213	59	34	10
Payment to: Total	100	100	100	100	100	100	100
Utility	98	<u>93</u>	<u>99</u>	<u>98</u>	<u>99</u>	<u>93</u>	<u>92</u>
Prepaid card	0	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Landlord	1	<u>5</u>	<u>1</u>	<u>2</u>	<u>0</u>	<u>7</u>	<u>0</u>
Third party (from utility power line)	1	<u>2</u>	<u>0</u>	<u>1</u>	<u>1</u>	<u>0</u>	<u>8</u>
N	216	35	181	162	53	28	7
Percent of households with outages at least once weekly	62	<u>66</u>	<u>61</u>	<u>58</u>	<u>77</u>	<u>67</u>	<u>66</u>
N	593	102	491	476	114	88	13
Refuse disposal							
Main method:							
Dumping	43	60	41	43	42	63	45
Burying	14	6	15	14	11	7	2
Burning	26	26	26	28	16	22	50
Collection system(a)	17	7	18	14	32	8	3
N	1,030	202	828	879	147	168	32
Proportion of House holds paying for collection	11	<u>29</u>	<u>10</u>	<u>7</u>	<u>22</u>	<u>31</u>	<u>0</u>
N	172	23	149	122	48	21	2

Notes:

Run by city, community, or private firm.

## D.2b Access to Sanitation Services

Only 11% of households reported that they have a toilet in their home, and this varies significantly by location and poverty status but not gender of household head; 12% of households in formal areas have a toilet at home but only 5% of those in informal settlements have one, and while 25% of the non-poor have a toilet at home, only 8% of poor households have one. Most households use a pit latrine (67%), the rest are divided evenly between flush toilet and public latrine at 16% each; flush toilet and public latrine are significantly more common among non-poor households who use them at rates of upwards of 35% (a significant difference compared to poor households). The majority of households (68%) share a toilet with several other families, typically 2-9 households. Having a private toilet is significantly more common in more formal areas and in female-headed vs. male-headed households in particular; but it does not differ significantly by poverty status. Most toilets (81%) drain into pits; only 17% are connected to a legal sewage system, and only 2% have a septic tank instead. Having a legal sewage system is significantly higher among the non-poor (38%) than the poor (13%), who are more likely to have a pit latrine than wealthier households.

“Grey water” (waste water from washing, cleaning, etc.) is generally poured out into the road (79%); most of the rest dumped down the drain (18%). Poor households are significantly more likely to pour grey water into the street than non-poor households, who are more likely to dump it down the drain or pour it into the latrine.

**Table D.2b: Access to sanitation**

Characteristic	All	Location		House hold poverty		Gender (Informal)	
		Informal areas	Formal areas	Poor	Non-poor	Male-headed	Female-headed
Percent of households with toilet in home	11	5	12	8	25	5	3
N	1,030	202	828	879	147	168	32
Type of toilet system: Total							
Pit latrine (individual)	67	67	67	75	25	66	70
VIP latrine	1	1	1	1	1	1	0
Flush toilet/WC	16	10	17	12	36	10	11
Public/shared latrine	16	22	15	12	38	23	19
Paid shared latrine	0	0	0	0	0	0	0
N	1,030	202	828	879	147	168	32
Percent of households sharing toilet:							
Doesn't share	32	15	34	31	35	12	37
Shares with 2-9 other households	56	65	55	57	50	67	50
Shares with 10+ other households	12	20	12	12	15	21	13
N	1,028	200	828	877	147	167	31
Type of disposal system for toilet:							
Total	100	100	100	100	100	100	100
Pit latrine	81	87	80	85	58	86	91
Sewer (legal)	17	12	17	13	38	13	6
Sewer (informal)	0	0	0	0	0	0	0
Septic tank/soak pit	2	2	2	2	5	1	3
N	980	178	802	839	138	148	28
Disposal of "grey water":							
Total	100	100	100	100	100	100	100
Dump into drain	18	17	18	17	26	17	16
Pour onto road	79	78	79	82	63	77	78
Pour into latrine	3	5	2	2	8	6	4
Other	1	0	1	0	3	0	2
N	1,027	201	826	876	147	167	32

### D.3 Access to Transport

Slightly more individuals (56%) work or study outside their neighborhood rather than inside. Interestingly, 80% of individuals from female-headed households work or study outside their neighborhood, a significantly higher percent than the 48% in male-headed households. Practically all household members commute on foot (83%), and 9% uses a matatu.<sup>14</sup>

Average one-way transport time is 19 minutes. Of the respondents that had to pay to travel, the average one-way cost is 86 KSh. Just over half (57%) of respondents said that their access to roads is generally good. Only 5% of households reported limited road access during the rainy season.

For most of Table D3, differences by category could not be tested for significance due to a lack of observations at the census tract level.

**Table D.3: Access to transport**

Characteristic	All	HH activity <sup>(a)</sup>		Location		HH poverty		Gender (Informal)	
		Work	Study	Informal areas	Formal areas	Poor	Non-poor	Male-headed	Female-headed
Percent who work or study...									
inside the neighborhood	41			<u>41</u>	<u>40</u>	<u>42</u>	<u>32</u>	46	18
outside the neighborhood	56			<u>53</u>	<u>56</u>	<u>54</u>	<u>67</u>	48	80
inside and outside the neighborhood	4			<u>5</u>	<u>4</u>	<u>5</u>	<u>1</u>	6	1
N	1,587			321	1,266	1321	259	272	46
Main mode of travel <sup>b</sup>	83	<u>81</u>	<u>86</u>	<u>83</u>	<u>84</u>	<u>86</u>	<u>69</u>	81	89
Walk									
Bicycle	0	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	1	0
Own vehicle	1	<u>1</u>	<u>0</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>2</u>	1	0
Matatu	9	<u>5</u>	<u>9</u>	<u>6</u>	<u>9</u>	<u>7</u>	<u>19</u>	6	6
Shared taxi	0	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Bike taxi	6	<u>12</u>	<u>3</u>	<u>9</u>	<u>5</u>	<u>5</u>	<u>9</u>	10	4
Municipal bus	0	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
N	2,202	276	180	456	1,746	1,853	338	378	72
Transport time (minutes)	19	<u>21</u>	<u>24</u>	<u>22</u>	<u>19</u>	<u>18</u>	<u>25</u>	22	18
N	2,194	273	180	453	1,741	1,847	336	376	71
One-way trip cost to work/school (KSh)	86	<u>35</u>	<u>133</u>	<u>64</u>	<u>89</u>	<u>75</u>	<u>113</u>	<u>61</u>	<u>93</u>
N	345	57	35	92	253	235	110	81	11
Households with road access as:	57			65	57	58	56	65	67
Poor									
Good	43			35	43	42	44	35	33
N	1,030			202	828	879	147	168	32
Percent of households with limited road access during rainy season	5			7	5	5	8	8	2
N	1,030			202	828	879	147	168	32

Notes:

a. Informal areas only.

b. To work or to school. May not add to 100% since "Other", which was negligible, is not reported in table

<sup>14</sup> A "matatu" is a 14-seater minivan used throughout Kenya as a form of public transport.

## D.4 Access to Communications

While land lines are practically nonexistent among households in Kericho, mobile phone ownership is widespread. The average household owns 1.3 mobile phones. The number owned is significantly higher for non-poor (nearly two phones) vs. poor households, and for male-headed vs. female-headed households. A remarkably large number of households use mobile banking (77%), and 95% of the non-poor use mobile banking, a significant difference as compared to the poorer households. On the other hand, relatively few respondents have a computer (4%), though the rate of computer ownership is significantly higher in among non-poor households (16%) than poor ones. Only 14% reported accessing the internet using any means, a figure which is also significantly higher among non-poor households than poor households (41% vs. 10%). Interestingly, access to communications did not vary significantly by area type.

**Table D.4: Access to communications**

Characteristic	All	Location		House hold poverty		Gender (Informal)	
		Informal areas	Formal areas	Poor	Non-poor	Male-headed	Female-headed
Percent of households with functioning land line	0	0	0	0	0	0	0
N	1,030	202	828	879	147	168	32
Average number of mobile phones owned by household	1.3	1.3	1.4	1.3	1.8	1.3	1
N	1,028	202	826	877	147	168	32
Percent of households using mobile banking	77	75	78	74	95	76	72
N	1,030	202	828	879	147	168	32
Percent of households with functioning computer	4	2	4	2	16	2	3
N	1,030	202	828	879	147	168	32
Percent of households using internet (any means)	14	13	14	10	41	11	28
N	1,028	202	826	877	147	168	32

## D.5 Access to infrastructure indicator

The access to infrastructure indicator combines six categories of infrastructure (divided into 13 subcategories) weighted by importance to the household and summed to create a household indicator from 0 to 9.5.<sup>15</sup> Higher scores represent better access to infrastructure. This indicator provides an overall understanding of a household's infrastructure access. By averaging households' scores on the indicator, we can quickly compare infrastructure access in informal and formal areas, between poor and non-poor households, and between male- and female-headed households in informal areas.

Table D.5 presents household mean scores on the access-to-infrastructure indicator. The mean score across all households in Kericho is 4.10. Households in formal areas score significantly higher than households in informal areas. There is also a significant differences between poor and non-poor households, and the difference in mean scores is quite large—a full point, which means, on average, they receive one more service.

<sup>15</sup> The 13 subcategories are: piped water (1 point); shared/indirect connection (0.5 points); direct electricity access (1); street lighting (0.5); garbage collection system (1); own toilet (1); shared toilet with less than 20 other people (0.5); legal sewer system for toilet (0.5); grey water not poured onto street (0.5); good road access at dwelling (0.5); road access not limited during rainy season (0.5); no flooding (1); no mudslides (1).

**Table D.5: Access to infrastructure indicator**

Characteristic	All	Location		House hold poverty		Gender (Informal)	
		Informal areas	Formal areas	Poor	Non-poor	Male-headed	Female-headed
Mean score on access to infrastructure indicator	4.10	3.55	4.16	3.94	4.94	3.58	3.46
N	1,030	202	828	879	147	168	32

## PART E. DEVELOPMENT POLYGONS

The following three figures are “Development Polygons”. These polygons are meant to complement the detailed tables presented in sections A through D by illustrating an “overall” sense of the state of the city. We present information for all areas, along with formal and informal areas, in each of the three figures: the Development Diamond, the Infrastructure Polygon, and the Living Conditions Diamond.<sup>16</sup> In all figures, the value labels included provide the value of the indicator for all areas. The statistics underlying these figures are also in the tables, above. Similar graphics also appear in the City-at-a-Glance Reports and the Overview Report produced under the NORC contract.

The axes for all figures represent percentages. Polygons with larger areas represent a “better” situation in regards to the associated indicator(s). Hence, a polygon with full coverage would indicate that the city is doing very well in terms of development, infrastructure, or living conditions.

The Development Diamond (Figure 1) maps four indicators of poverty—welfare, employment, education, and living conditions. Scores on employment and education are relatively high - 69% have completed primary school and 69% are working. However, scores on welfare and living conditions are relatively low - only 15% are above the poverty line and only 19% have permanent walls, water, and electricity in their homes. In all quarters of the development diamond - welfare, employment, education, and living conditions—formal and informal areas are similarly situated. However, households in formal areas slightly outpace the households in informal areas in terms of living conditions - in formal areas, 47% of households have permanent walls vs. only 35% in informal areas, and access to both piped water and electricity are higher in formal areas; 60% have electricity in formal areas vs. 49% in informal areas, and 39% have piped water in their dwelling in formal areas while only 20% have it in informal areas.

The Infrastructure Polygon, shown in Figure 2, presents residents’ access to ten different types of infrastructure—piped water, electricity, private toilets,

Figure 2: Infrastructure Polygon

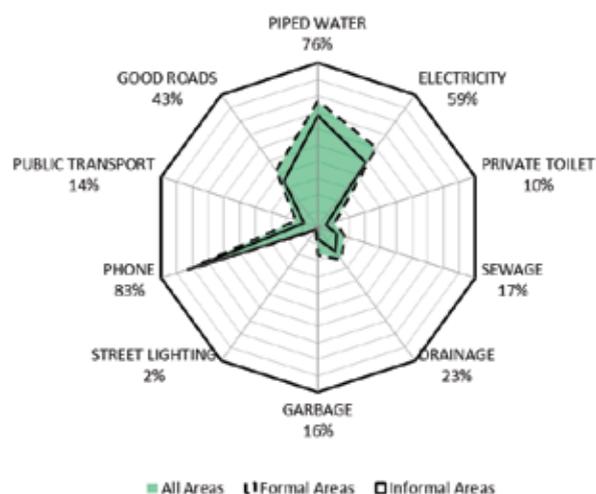


Figure 1: Development Diamond



<sup>16</sup> The basic format for all three figures appear in the World Bank Policy Research Working Paper, “Poverty, Living Conditions, and Infrastructure Access” A Comparison of Slums in Dakar, Johannesburg, and Nairobi” by Sumila Gulyani, Debabrata Talukdar, and Darby Jack (2010). We strived to make our own figures as similar as possible, though some deviations, noted in the accompanying text, were necessary.

sewage, drainage, garbage collection, street lighting, mobile phones, an absence of flooding, and good roads. Respondents report relatively high access to piped water (76%), electricity (59%) and especially mobile phones (83%), while the other types of infrastructure exhibit access that is relatively low (except for “good roads” which scored 43%). Street lighting scores especially low with only 2% reporting functional lighting in their area. Scores are slightly higher in formal areas as compared to informal areas, except for mobile phones, which are fairly ubiquitous in both areas.

Figure 3 presents the Living Conditions Diamond. The four axes of this diamond are the infrastructure score (scaled to a percentage), unit conditions, neighborhood and location, and tenure. Scores on infrastructure and unit conditions are average at around 45%, while neighborhood and location scores are relatively high (62% feel safe). However, only 21% of households own their dwelling. Informal areas, again, score slightly below formal areas.

**Figure 3: Living Conditions Diamond**



**World Bank Group**

Delta Centre

Menengai Road, Upper Hill

P.O. Box 30577-00100

NAIROBI, KENYA

Telephone: +254-020-2936000

[www.worldbank.org/en/country/kenya](http://www.worldbank.org/en/country/kenya)

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